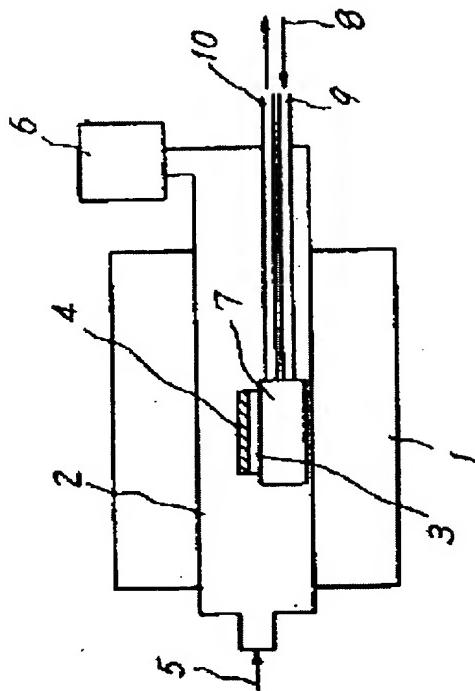


MANUFACTURE OF OPTICAL WAVEGUIDE FILM

Patent number: JP58030710
Publication date: 1983-02-23
Inventor: SHIBATA NORIYOSHI; KAWACHI MASAO; TOMARU AKIRA; YASU MITSUHO; EDAHIRO TAKAO
Applicant: NIPPON TELEGRAPH & TELEPHONE
Classification:
- **International:** G02B5/172
- **European:** C03C17/25C
Application number: JP19810128215 19810818
Priority number(s): JP19810128215 19810818

Abstract of JP58030710

PURPOSE: To efficiently obtain a uniform optical waveguide film by placing a substrate for forming a porous oxide film in a reaction tube and by oxidizing starting materials for forming oxides at a high temp. while keeping the substrate at a temp. below the oxidation temp. in the reaction tube. **CONSTITUTION:** A reaction tube 2 is put in a tubular electric furnace 1, a substrate cooler 7 is placed in the tube 2, and a substrate 3 is mounted on the cooler 7. By blowing a gas 8 for cooling from a duct 9, the cooler 7 is cooled to make the temp. of the substrate 3 constant. At this time, the gas 8 is intermittently discharged from a duct 10 to intermittently keep the substrate 3 at a constant temp. A gas saturated with TiCl₄, a gas saturated with SiCl₄ and O₂ as starting materials 5 for forming glass are introduced into the tube 2 and heated to 1,400 deg.C to cause oxidation. At this time, by keeping the substrate 3 at 1,200 deg.C, a porous film 4 of TiO₂-SiO₂ composite oxide glass is uniformly formed. The film is melted by heating to 1,400 deg.C to obtain a prescribed optical waveguide film.



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